

Wave Simulation

1. In the simulator, change the speed from “normal” to “slow motion”.

Move the wrench up and down and watch how the wave travels towards the clamp.

In a couple of sentences describe what you see happening to the wave as it travels down.

2. Now, turn the damping up to “lots” and move the wrench up and down. In a couple of sentences describe what you see happening to the wave as it travels down.

3. Tell me in your own words what “Damping” does to a wave (make your own definition)

Dampening:

4. Hit the reset button in the simulation. Change the setting on the left from “Manual” to “Oscillate”. Set the “Amplitude” to 1.0 and the “Frequency” to .5 and observe the wave and it travels towards the clamp. Change the frequency to 1.0 and write in the difference that you observe:

5. Now set the Amplitude to .5 and write in the difference you observe:

6. Tell me in your own words what the definitions of Amplitude and Frequency are in waves.

Frequency:

Amplitude:

7. In terms of energy, does this setting show us a wave with a lot of energy or a little bit of energy?
8. Create two sets of waves where one shows low energy and one shows that high energy. Draw them in the boxes and write in what their amplitudes and frequencies are:



High Energy Wave

Amplitude:

Frequency:



Low Energy Wave

Amplitude:

Frequency:

9. Now turn the Amplitude to 1.00 and on the right hand of the screen, change the option from "Fixed End" to "Loose End". In the lower right hand area, check the box that says "Reference Line" and drag it so that it lines up with the top of the green marble.

You'll notice that the green marble never goes above the line. Turn "Damping" to none and watch what happens to the ring on the pole. Describe what you see below:

10. Why do you think this is happening?